

HOW ARE FOSSILS FORMED?

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What is a fossil?

A fossil is the remains
or evidence of any plant
or creature that once
lived on the earth.

Type I Fossils

The remains of the dead
animal or plant or the
imprint left of them

Bones



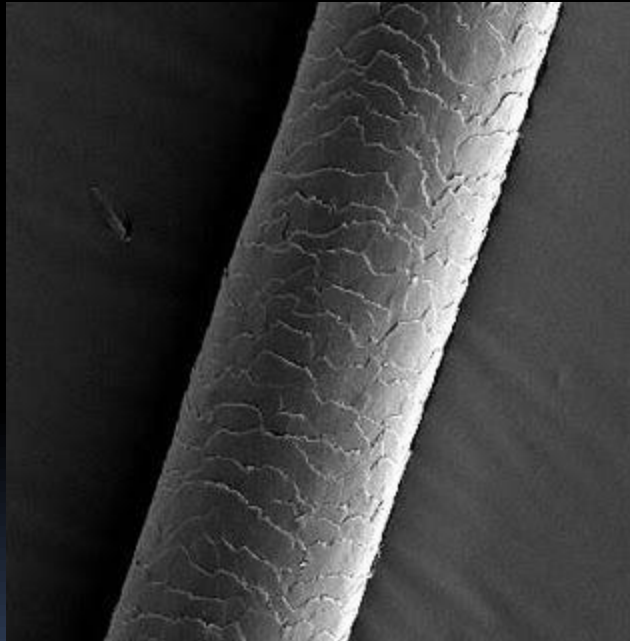
Teeth



Skin impressions



Hair



The hardened shell of an
ancient invertebrate



The impression of a plant
or an animal



Type II Fossils

Something that was made
by the animal while it
was living, that has
hardened into stone

Also called a Trace
Fossil

Footprints



Burrows



Coprolite (poop!)



So, how are fossils formed?

No matter how it occurs,
fossilization takes a lot
of luck to happen.

Fossils are formed by..
Freezing (refrigeration)

- Best means to preserve ancient materials
- Happens only rarely



This baby woolly mammoth died 37,000 years ago. She was 4 feet 3 inches tall and weighed 110 pounds. She was unearthed in Siberia.

Fossils are formed by..
Drying (desiccation)

- Soft tissues are preserved for thousands of years if completely dried
- Happens mostly in arid areas

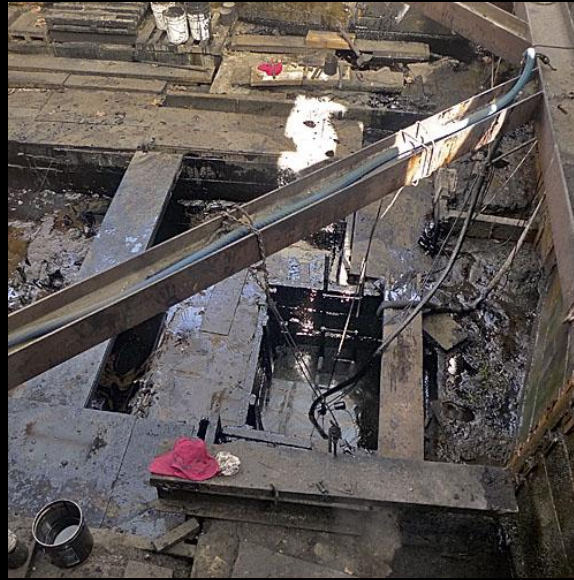


This Saker Falcon was found in
Egypt.

Fossils are formed by..

Asphalt

- Tar pits are formed by crude oil that leaks through fissures in the earth.
- The oil evaporates and leaves sticky asphalt.
- Asphalt is an excellent preservative.



This is Pit 91 at the La Brea Tar Pits in Los Angeles. Scientists have recovered over 50,000 fossils from this pit.

Fossils are formed by...

Amber

- Insects and other things become trapped in sticky tree sap.
- The tree sap hardens into amber, with the insect entombed inside of it.



Some of the best preserved
fossils of insects are found in
Amber.

Fossils are formed by..

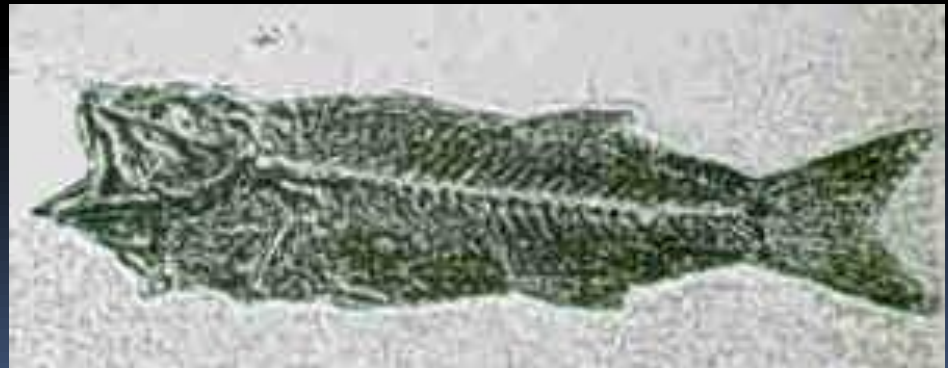
Carbonization (distillation)

- Plant leaves and soft animal body parts decompose leaving behind only carbon.
- The carbon creates an impression in the rock, outlining the fossil.



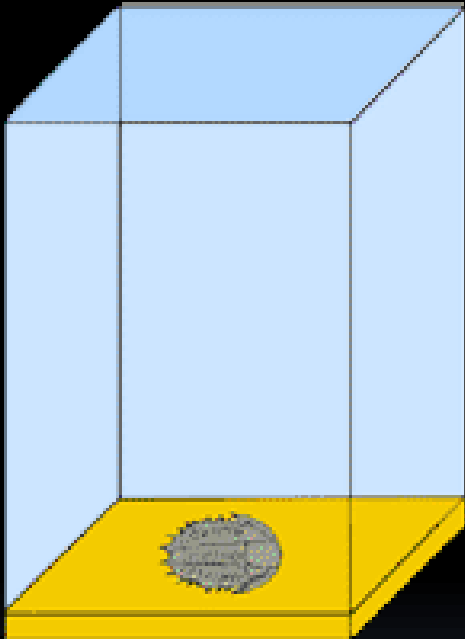
This fern leaf decomposed and left a detailed imprint.

The imprint of this fish shows carbonization.



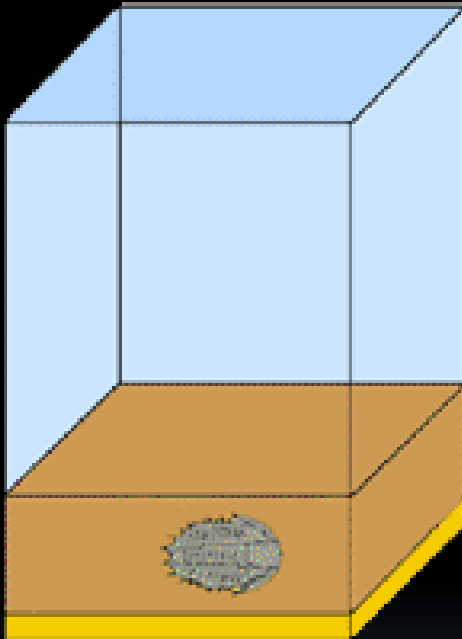
Fossils are formed by.. Perimineralization

- This is the most common form of fossil preservation.



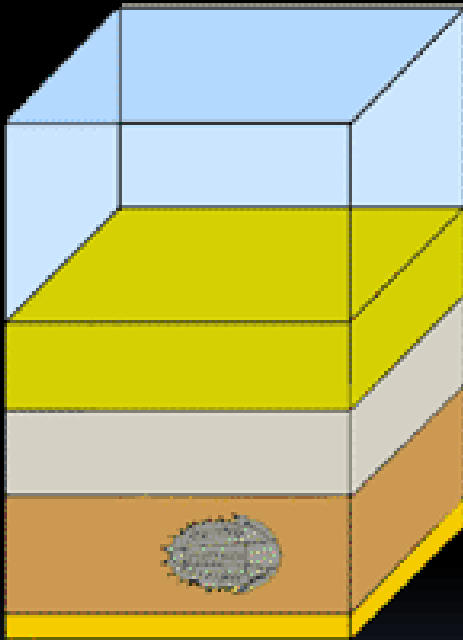
- A trilobite dies on the bottom of the sea.
- Bacteria decompose the soft body parts.
- The hard exoskeleton is left intact.

- Sediments bury the exoskeleton.



- The faster this happens, the more likely that fossilization will occur.
- The type of sediments influences what the fossil will look like.

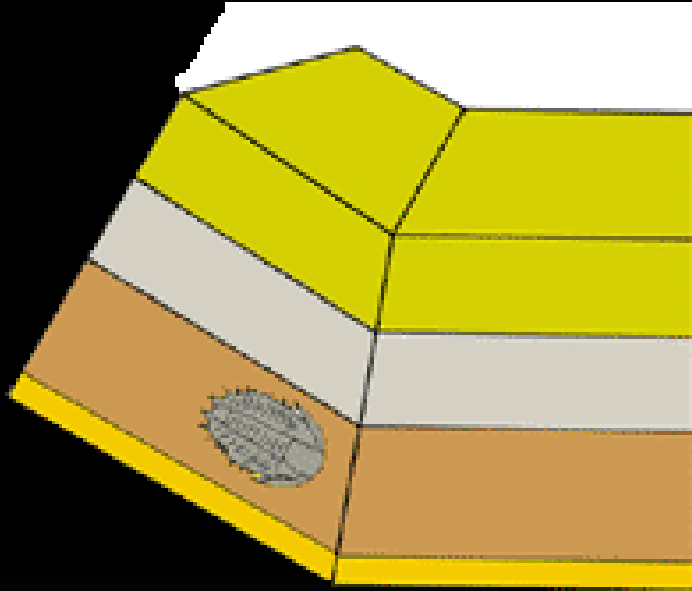
- Over time, the pressure turns the sediments into rock.



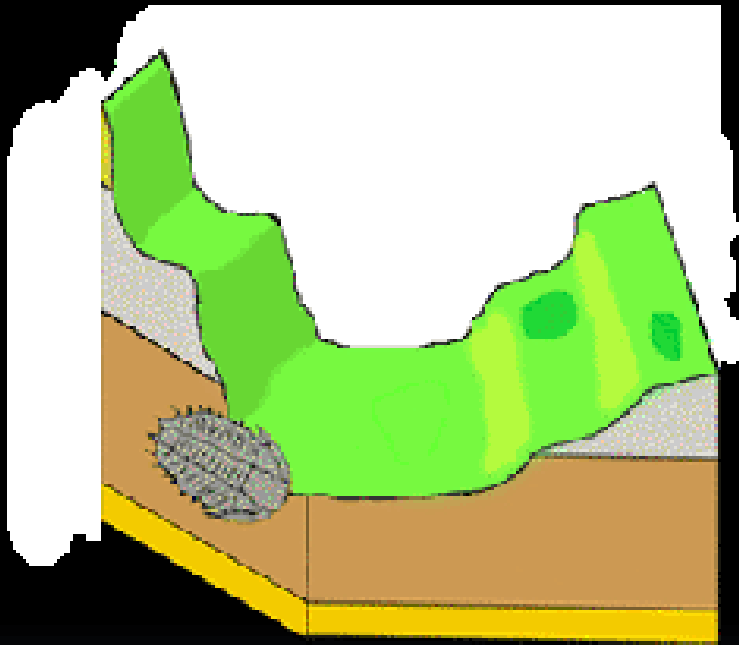
- Minerals stick to the exoskeleton.

- The molecules of the exoskeleton are slowly replaced with minerals.

- In time, the entire exoskeleton is replaced with rock in the exact shape of the exoskeleton.



- The continental plates on the Earth's crust move around.
- The trilobite moves closer to the surface due to this uplift.



- The fossil trilobite is slowly revealed by erosion.



Trilobite



Ammonite



Brachiopod



Gastropod



Horn Coral

Questions?